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EXAMINER
NGUYEN, HUNG D

ART UNIT	PAPER NUMBER
3742	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/576,453	SIECKMANN ET AL.
	Examiner	Art Unit	
	HUNG NGUYEN	3742	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>18 February 2010</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>25-50</u> is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>25-50</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>20 April 2006</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☒ All b)☐ Some * c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
　　Paper No(s)/Mail Date. _____.

4)☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

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DETAILED ACTION

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Claim Rejections - 35 USC § 102

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1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public
> use or on sale in this country, more than one year prior to the date of application for patent in the United
> States.

2.   **Claims 25-26, 29, 45 and 47 are rejected under 35 U.S.C. 102(b) as being**

anticipated by Schutze et al. (US Pat. 5,998,129) (cited by applicant).

3.   Regarding claim 25, Schutze et al. discloses a method for laser microdissection

comprising: capturing an electronic image of at least one image detail of a specimen

(Col. 7, Lines 4-7); processing the at least one image detail using image analysis so as

to automatically ascertain at least one object to be cut out (Col. 7, Line 8-13);

automatically calculating a contour of the at least one object (Col. 7. Lines 10-13,

"**travels automatically under the control of a computer program in accordance**

with a predetermined patterned in essentially circulation or a spiral shape around

the chosen object 10" inherently the same as automatically calculating a contour of the

at least one object); automatically defining, based on the calculated contour, a nominal

cutting line around the at least one object to be cut out (Col. 7, Line 13-15); and

subsequently cutting out the at least one object in response to a relative motion

between a laser beam and the specimen (Col. 7, Lines 16-21).

4.   Regarding claim 26, Schutze et al. further discloses a step of preparing the

electronic image for the processing using a contrasting method based on camera (Col.

6, Lines 41-46).

5.   Regarding claim 29, Schutze et al. further discloses the electronic image is either

a grayscale image or a color image (Col. 7, Line 5-7).

6.   Regarding claim 45, Schutze et al. further discloses a defined clearance distance

in the specimen so as to prevent a neighboring object from being sliced through (Col. 7,

Lines 13-20).

7.   Regarding claim 47, Schutze et al. further discloses superimposing, by an

imaging device, the nominal cutting line onto the electronic image so as to control

results of the cutting out (Col. 6, Lines 29-64).

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

9.   Claims 25-26, 29, 45 and 47 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Schutze et al. (US Pat. 5,998,129) (hereinafter Schutze'129) in

view of Schutze (US Pub. 2004/0252291) (hereinafter Schutze'291) (newly cited).

10.   Regarding claim 25, Schutze'129 discloses a method for laser microdissection

comprising: capturing an electronic image of at least one image detail of a specimen

(Col. 7, Lines 4-7); processing the at least one image detail using image analysis so as to automatically ascertain at least one object to be cut out (Col. 7, Line 8-13); automatically defining, based on the calculated contour, a nominal cutting line around the at least one object to be cut out (Col. 7, Line 13-15); and subsequently cutting out the at least one object in response to a relative motion between a laser beam and the specimen (Col. 7, Lines 16-21). Schutze'129 does not discloses automatically calculating a contour of the at least one object. Schutze'291 discloses automatically calculating a contour of the at least one object (Par. 15 and 42). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in Schutze'129, automatically calculating a contour of the at least one object, as taught by Schutze'291, for the purpose of automatic surface area calculation after the object is scanned.

11.   Regarding claim 26, Schutze'129 further discloses a step of preparing the electronic image for the processing using a contrasting method based on camera (Col. 6, Lines 41-46).

12.   Regarding claim 29, Schutze'129 further discloses the electronic image is either a grayscale image or a color image (Col. 7, Line 5-7).

13.   Regarding claim 45, Schutze'129 further discloses a defined clearance distance in the specimen so as to prevent a neighboring object from being sliced through (Col. 7, Lines 13-20).

14.   Regarding claim 47, Schutze'129 further discloses superimposing, by an imaging device, the nominal cutting line onto the electronic image so as to control results of the cutting out (Col. 6, Lines 29-64).

15.   Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schutze et al. (US Pat. 5,998,129) in view of Schutze (US Pub. 2004/0252291) and further view of Schachter et al. (XP-0002269476) (cited by applicant).

16.   Regarding claim 27, Schutze'129/ Schutze'291 disclose substantially all features of the claimed invention as set forth above **except** for the processing the image detail is performed using a segmenting of the electronic image: defining a grayscale threshold value on the basis of the electronic image; and converting, by making a comparison with the grayscale value threshold, the electronic image to a binary image including only the at least one object segmented. Schachter et al. discloses a processing the image detail is performed using a segmenting of the electronic image: defining a grayscale threshold value on the basis of the electronic image (Page 19; Left column, Par. 2) and converting, by making a comparison with the grayscale value threshold (Page 19; Left column, Par. 3), the electronic image to a binary image including only the at least one object segmented (Page 24; Left column, Par. 2). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in Schutze'129/Schutze'291, the processing the image detail is performed using a segmenting of the electronic image: defining a grayscale threshold value on the basis of the electronic image; and converting, by making a comparison with the grayscale value threshold, the electronic image to a binary image including only the at least one object

segmented, as taught by Schachter et al., for the purpose of segmenting an object in an image by gray level threshold.

17.   Regarding claim 28, Schutze'129/Schutze291 disclose substantially all features of the claimed invention as set forth above **except** for the defining a grayscale threshold value is performed by manually setting the threshold value. Schachter et al. discloses a defining a grayscale threshold value is performed by manually setting the threshold value (Page 19, Right column, Par. 4 to Page 20, Left column, Par. 2).

18.   Claims 30-37 and 48-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schutze et al. (US Pat. 5,998,129) in view of Schutze (US Pub. 2004/0252291), Schachter et al. (XP-0002269476) and further view of Mengel (DE 19636074) (cited by applicant).

19.   Regarding claim 30, Schutze'129/Schutze'291/Schachter disclose substantially all features of the claimed invention as set forth above **except** for the processing the image detail includes: defining specific classification features characterizing the at least one object so as to ascertain the at least one object; classifying the at least one object using image analysis by determining from the image actually existing object features of the at least one object segmented and comparing the existing object features to the defined specific classification features. Mengel discloses a processing the image detail includes: defining specific classification features characterizing the at least one object so as to ascertain the at least one object (Page 1, Par. 6; English translation); classifying the at least one object using image analysis by determining from the image actually existing object features of the at least one object segmented and comparing the

existing object features to the defined specific classification features (Page 1, Par. 10;

English translation). It would have been obvious to one of ordinary skill in the art at the

time of the invention was made to utilize in Schutze'129/Schutze'291/Schachter, the

processing the image detail includes: defining specific classification features

characterizing the at least one object so as to ascertain the at least one object;

classifying the at least one object using image analysis by determining from the image

actually existing object features of the at least one object segmented and comparing the

existing object features to the defined specific classification features, as taught by

Mengel, for the purpose of classifying parts which can be examined on the basis

captured images.

20.   Regarding claim 31, Schutze'129/Schutze'291/Schachter disclose substantially

all features of the claimed invention as set forth above **except** for the comparing is

performed so as to determine whether the actually existing object features conform with

the defined specific classification features. Mengel discloses comparing is performed

so as to determine whether the actually existing object features conform with the

defined specific classification features (Page 2, Par. 1; English translation).

21.   Regarding claim 32, Schutze'129/Schutze'291/Schachter disclose substantially

all features of the claimed invention as set forth above **except** for the defining specific

classification features includes defining, in each instance for different object types,

individual feature data records including the specific classification features. Mengel

discloses a defining specific classification features includes defining, in each instance

for different object types, individual feature data records including the specific

classification features (Page 2, Par. 14; English translation).

22.   Regarding claim 33, Schutze'129/Schutze'291/Schachter disclose substantially

all features of the claimed invention as set forth above **except** for the defining specific

classification features is performed automatically or manually in a learning process

including inputting the classification features interactively or automatically by suitably

marking the at least one object. Mengel discloses the defining specific classification

features is performed automatically or manually in a learning process including inputting

the classification features interactively or automatically by suitably marking the at least

one object (Page 2, Par. 10; English translation).

23.   Regarding claim 34, Schutze'129 further discloses the marking is performed

using a mouse click (Col. 7, Line 10).

24.   Regarding claim 35, Schutze'129 further discloses the automatically defining the

nominal cutting line is performed so as to exclude unclassified objects (Col. 7, Lines 13-

26).

25.   Regarding claim 36, Schutze'129/Schutze'291/Schachter disclose substantially

all features of the claimed invention as set forth above **except** for the defining specific

classification features includes defining a range of values for at least one of the specific

classification features. Mengel discloses defining specific classification features

includes defining a range of values for at least one of the specific classification features

(Page 2; Par. 16-18; English translation).

26.   Regarding claim 37, Schutze'129/Schutze'291/Schachter disclose substantially

all features of the claimed invention as set forth above **except** for the excluding from the

nominal cutting line objects, identified by the comparing the existing object features to

the defined specific classification features, that border on an edge of the image detail or

that are only partially visible in the image detail. Mengel discloses an excluding from

the nominal cutting line objects, identified by the comparing the existing object features

to the defined specific classification features, that border on an edge of the image detail

or that are only partially visible in the image detail (Page 3, Par. 1; English translation).

27.   Regarding claims 48 and 49, Schutze'129/Schutze'291/Schachter disclose

substantially all features of the claimed invention as set forth above **except** for the

applying a mathematical transformation so as to automatically map the nominal cutting

line onto a laser cutting line; and scaling the laser cutting line as a function of the image

magnification. Mengel discloses applying a mathematical transformation so as to

automatically map the nominal cutting line onto a laser cutting line; and scaling the laser

cutting line as a function of the image magnification (Page 2, Par. 16; English

translation).

28.   **Claims 38, 46 and 50 are rejected under 35 U.S.C. 103(a) as being**

unpatentable over Schutze et al. (US Pat. 5,998,129) in view of Schutze (US Pub.

2004/0252291) and further view of Bova (US Pub. 2002/0025511) (previously cited).

29.   Regarding claim 38 and 46, Schutze'129/Schutze'291 disclose substantially all

features of the claimed invention as set forth above **except** for at least one object

includes a plurality of objects disposed in close proximity to one another, and further

comprising combining the plurality of objects into a cluster, and wherein the automatically defining a nominal cutting line is performed so as to define a single shared nominal cutting line surrounding the cluster. Bova discloses at least one object 37 (Fig. 3) includes a plurality of objects 40, 41 (Fig. 3) disposed in close proximity to one another, and further comprising combining the plurality of objects into a cluster (Refer to Fig. 3), and wherein the automatically defining a nominal cutting line is performed so as to define a single shared nominal cutting line surrounding the cluster (Par. 61-69). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in Schutze'129/Schutze'291, at least one object includes a plurality of objects disposed in close proximity to one another, and further comprising combining the plurality of objects into a cluster, and wherein the automatically defining a nominal cutting line is performed so as to define a single shared nominal cutting line surrounding the cluster, as taught by Bova, for the purpose of combining plurality object to one cluster and remove it one cutting.

30.   Regarding claim 50, Schutze'129/Schutze'291 disclose substantially all features of the claimed invention as set forth above **except** for modifying the nominal cutting line so as to compensate for imprecise repositioning of the microscope stage. Bova discloses modifying the nominal cutting line so as to compensate for imprecise repositioning of the microscope stage (Par. 77).

31.   Claims 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schutze et al. (US Pat. 5,998,129) in view of Schutze (US Pub. 2004/0252291) and further view of Ganser (US Pub. 2002/0048747) (previously cited).

32.   Regarding claim 39, Schutze'129/Schutze'291 disclose substantially all features
of the claimed invention as set forth above **except** for applying a mathematical
transformation so as to automatically map the nominal cutting line onto a laser cutting
line; and converting the laser cutting line into the relative motion between the laser
beam and the specimen so as to provide a laser cut. Ganser discloses applying a
mathematical transformation so as to automatically map the nominal cutting line onto a
laser cutting line; and converting the laser cutting line into the relative motion between
the laser beam and the specimen so as to provide a laser cut (Par. 42-44). It would
have been obvious to one of ordinary skill in the art at the time of the invention was
made to utilize in Schutze'129/Schutze'291, applying a mathematical transformation so
as to automatically map the nominal cutting line onto a laser cutting line; and converting
the laser cutting line into the relative motion between the laser beam and the specimen
so as to provide a laser cut, as taught by Ganser, for the purpose of mapping the image
to the cutting onto the laser to perform a cut.

33.   Regarding claim 40, Schutze'129/Schutze'291 disclose substantially all features
of the claimed invention as set forth above **except** for initiating, by a user or
automatically, the relative motion between the laser beam and the specimen. Ganser
discloses an initiating, by a user or automatically, the relative motion between the laser
beam and the specimen (Par. 44).

**34.   Claims 41-42 is rejected under 35 U.S.C. 103(a) as being unpatentable over
Schutze et al. (US Pat. 5,998,129), Schutze (US Pub. 2004/0252291), Ganser (US**

Pub. 2002/0048747 and further view of Saund (US Pat. 6,377,710) (previously

cited).

35.   Regarding claim 41, Schutze'129/Schutze'291/Ganser disclose substantially all

features of the claimed invention as set forth above including from Schutze'129, the

automatically calculating includes determining the outer contour of the at least one

object using image analysis (Col. 7, Lines 9-13) and from Ganser, the contour 25, 26,

27 and 28 (Fig. 2) is an outer contour of the at least one object 24 (Fig. 2) except for

converting the outer contour into a numerical code. Saund discloses converting the

outer contour into a numerical code (Col. 4, Line 60 to Col. 5, Line 8). It would have

been obvious to one of ordinary skill in the art at the time of the invention was made to

utilize in Schutze'129/Schutze'291/Ganser, converting the outer contour into a

numerical code, as taught by Saund, for the purpose of mapping the boundary contour

on the perimeter of the object.

36.   Regarding claim 42, Schutze'129/Schutze'291/Ganser disclose substantially all

features of the claimed invention as set forth above **except** the numerical code is a

Freeman code or a chain code. Saund discloses the numerical code is a chain code

(Col. 4, Line 60 to Col. 5, Line 8).

37.   Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Schutze et al. (US Pat. 5,998,129) in view of Schutze (US Pub. 2004/0252291) and

further view of Sakai et al. (US Pub. 2001/0053245) (previously cited).

38.   Regarding claim 43, Schutze'129/Schutze'291 disclose substantially all features

of the claimed invention as set forth above except for performing an automatic shading

correction including: recording an empty image without a specimen; storing the empty

image as a shading correction image; and applying an offset correction to the captured

electronic image using the shading correction image. Sakai et al. discloses an

automatic shading correction (Par. 39) including: recording an empty image without a

specimen (par. 53); storing the empty image as a shading correction image; and

applying an offset correction to the captured electronic image using the shading

correction image (Par. 52). It would have been obvious to one of ordinary skill in the art

at the time of the invention was made to utilize in Schutze'129/Schutze'291, performing

an automatic shading correction including: recording an empty image without a

specimen; storing the empty image as a shading correction image; and applying an

offset correction to the captured electronic image using the shading correction image,

as taught by Sakai et al., for the purpose of calibrating the images recording apparatus.

39.   Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Schutze et al. (US Pat. 5,998,129) in view of Schutze (US Pub. 2004/0252291),

Schachter et al. (XP-0002269476) and further view of Schuetze (WO 03036266)

(previously cited).

40.   Regarding claim 44, Schutze'129/Schutze'291/Schachter disclose substantially

all features of the claimed invention as set forth above except for removing a specific

unwanted object of the at least one object from the binary image using image analysis

morphology, the unwanted object being not designated for microdissection. Schuetze

discloses removing a specific unwanted object of the at least one object from the binary

image using image analysis morphology, the unwanted object being not designated for

microdissection (Page 2, Par. 5-6; "The selection … selection of the desired objects";

English translation). It would have been obvious to one of ordinary skill in the art at the

time of the invention was made to utilize in Schutze'129/Schutze'291/Schachter,

removing a specific unwanted object of the at least one object from the binary image

using image analysis morphology, the unwanted object being not designated for

microdissection, as taught by Schuetze, for the purpose of cutting out only the wanted

object that have mapping into the cutting line.

Response to Arguments

41.   Applicant's arguments filed 2/18/2010 have been fully considered but they are

not persuasive. The applicant argues "It is respectfully submitted that Schutze fails to

teach "**automatically calculating a contour of the at least one object**" and

"automatically defining, **based on the calculated contour**, a nominal cutting line

around the at least one object to be cut out" as is now recited in claim 25 of the present

application. In contrast, the object outline of Schutze is produced by a microscope slide

moved either by hand (controlled by a mouse or joystick) or which travels automatically

under the control of a computer program in accordance with a predetermined pattern in

an essentially circular or spiral shape around the chosen object 10. See Schutze,

column 7, lines 9-15. The object outline in Schutze therefore is either done by hand or

follows a predetermined pattern. No automatic calculation of a contour of the at least

one object is made, and an automatically calculated contour is not used to automatically

define a nominal cutting line, as required by amended claim 25" recited in lines 6-15,

page 9 of the Remarks. The examiner disagrees. Regarding to the new limitations that

is amended in claim 25, Schutze (US Pat. 5,998,129) discloses automatically

calculating a contour of the at least one object (Col. 7, Lines 9-13) and automatically

defining, based on the calculated contour, a nominal cutting line around the at least one

object to be cut out (Col. 7, Lines 13-15).

42.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to HUNG NGUYEN whose telephone number is (571)270-

7828. The examiner can normally be reached on Monday-Friday, 9M-6PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tu Hoang can be reached on (571)272-4780. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HUNG NGUYEN/
Examiner, Art Unit 3742
5/10/2010
/TU B HOANG/
Supervisory Patent Examiner, Art Unit 3742